# ABSTRACT

## CHARACTERIZATION OF p-METHOXYCINNAMIC ACID-β-CYCLODEXTRIN INCLUSION COMPLEX PREPARED USING EVAPORATION METHOD

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*p*-Methoxycinnamic Acid (*p*MCA) is a compound obtained from the hydrolysis of ethyl-*p*-methoxycinnamate (EPMC) which has an anti inflammation activity. *p*MCA has very low solubility in water. To increase its solubility an inclusion complex of *p*MCA and β-cyclodextrin were made with molar ratio 1:1. Inclusion complex prepared with evaporation method by dissolving *p*MCA and β-cyclodextrin in 200 ml of 12% aqueous ethanol then evaporated using Rotary Evaporator at 70˚C with rotation speed 400 rpm. The inclusion complex formed was analyzed with DTA,FTIR, and Powder X-Ray Diffraction (PXRD), compared with *p*MCA, β-cyclodextrin, and physical mixture of *p*-MCA-β-cyclodextrin. Analysis using DTA showed a broadened peak and decrease of intensity for inclusion complex compared with physical mixture and single compound substance. FTIR study of inclusion complex formed showed that C-H aromatic and C=O carboxylic spectra which are specific for *p*MCA has a different absorption band compared with the physical mixture. Analysis using PXRD showed decrease of intensity between inclusion complex formed compared with *p*MCA. UV spectra profile of inclusion complex formed showed no difference with *p*MCA spectra profile therefore the *p*MCA content in inclusion complex formed can be determined. Recovery of *p*MCA content in inclusion complex was 92,45 %, this study showed the uniformity of *p*MCA content in inclusion complex formed. Dissolution profile of inclusion complex gave a better dissolution rate compared with *p*-MCA and physical mixture. The statistical analysis with one way anova showed significance < 0,05, therefore a difference dissolution rate between inclusion complex, *p*-MCA, and physical mixture. The results of the characterization and dissolution profile method showed that inclusion compex of *p*MCA and β-cyclodextrin can be formed using evaporation method.

*Keywords* : *p*-Methoxycinnamic Acid, β-cyclodextrin, inclusion complex, evaporation, characterization, dissolutio